

# CERCLA EXPANDED SITE INSPECTION ADDENDUM REPORT

for:

**Eagle Zinc Company** 

Hillsboro, Montgomery county, Illinois

ILD#: 980606941

PREPARED BY:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND
DIVISION OF REMEDIATION MANAGEMENT
OFFICE OF SITE EVALUATION

September 1, 2005

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#### **SECTION 1.0 INTRODUCTION**

#### 1.1 Introduction

On September 24, 2004 the Illinois Environmental Protection Agency's (IEPA)'s Office of Site Evaluation was tasked by the United States Environmental Protection Agency (U. S. EPA) to conduct a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Expanded Site Inspection (ESI) Addendum investigation of the Eagle Zinc Company (ILD 980606941) site located on Industrial Park Drive in Hillsboro, Montgomery county, Illinois. The ESI was performed under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) commonly known as Superfund.

The objective of an Expanded Site Inspection (ESI) is to collect all data necessary to prepare a Hazard Ranking System (HRS) scoring package to propose the site to the National Priorities List (NPL). To fully evaluate the site and fulfill HRS documentation requirements, the ESI should:

- 1) Investigate and document critical hypotheses or assumptions not completely tested during previous investigations;
- 2) Collect samples to attribute hazardous substances to site operations;
- 3) Collect samples to establish representative background levels;
- 4) Collect any other missing HRS data for pathways of concern.

#### **SECTION 2.0 SITE BACKGROUND**

#### 2.1 Site Description

The Eagle Zinc Company site is located on the west side of Industrial Park Drive in Hillsboro, Montgomery county, Illinois, at the northeast corner of Hillsboro, with a smaller section of vacant land lying east of Industrial Park Drive. It consists of approximately 132 acres and is legally described as having portions being located in the Southeast Quarter of Section One and the Northeast Quarter of Section twelve, T.8N, R.4W; and part of the Southwest Quarter of Section Six, T.8N, R3W. The surrounding area consists of Industrial Park Drive on the east side with vacant land beyond. Smith Road borders the north side with a recreational area lying to the north. The west side is irregular in shape and is bordered by Brailly Road on the north and vacant land further to the south. Houses lie along Brailly Road and along nearby streets further west. Private businesses, including a wood treating facility and lumber yard, lie south of the facility along Ash Street. The property contains approximately 132 acres of which approximately 26 were under roof. The buildings are located mainly on the east side of the site, with the area west of the buildings containing large piles of waste materials from the smelting and manufacturing activities. There are approximately 23 buildings remaining onsite. The activities that were conducted in the buildings included manufacturing/processing, office/laboratory, equipment, raw material and finished product storage, baghouses and maintenance.

There are two small ponds located at the northeastern portion of the property that discharges to a small brook that originates in the field located on the north side of the property. The brook flows east under Industrial Park drive and meanders to the northeast

were it enters Lake Hillsboro approximately 2500 feet from the site. A larger pond is located at the southwestern portion of the property. It consists of a slag dam constructed to contain runoff from large areas of slag and cinders located in the central and southwest area of the site. Runoff from the pond overflows from the dam on the west side and becomes part of a small brook. There is a drainage ditch on the south side of the property along an abandoned railroad right-of-way that drains west and joins with the dam overflow below the dam. The north bank of the ditch along Eagle Zinc property consists of a wall of slag and cinders in some places. The brook then flows west for approximately 1500 feet to an unnamed tributary of Middle Fork Shoal creek. It then flows north for approximately 3000 feet into Middle Fork shoal creek. The water then flows southwest approximately six miles and enters Shoal Creek.

Access to the property is via Industrial Park drive. There is a locked gate and the site has a low fence to prevent unauthorized vehicular access. There are no onsite employees nor guard to prevent people entering the property by climbing over the fence or where the fencing is absent or damaged. The nearest residents are located approximately 300 feet west of the property. The city of Hillsboro obtains its drinking water from surface water from Lakes Hillsboro and Glenn Shoals. The area shallow geology consists of approximately 50 to 100 feet of Pleistocene glacial till and outwash unconsolidated glacial deposits.

Underlying the glacial deposits is bedrock consisting of the Pennsylvanian Bond Formation consisting mainly of limestone with some layers of shale and sandstone. Groundwater use in the area is limited since most people in the area are serviced by the Hillsboro water system.

#### 2.2 SITE HISTORY

The property consists of a former zinc smelting and processing facility that began operations in 1912 as Lanyon Zinc Company and was sold to Eagle-Picher Industries in 1919. The facility was operated by Eagle Pitcher until 1980. The property was acquired by Sherman Williams in November 1980 who operated it until 1984. The facility was acquired in 1984 by Eagle Zinc Company, which is a division of T. L. Diamond Company of New York City. The facility ceased operations at the plant in 2003. Products produced during the years include: zinc, sulfuric acid, zinc oxide and leaded zinc oxide. The leaded zinc oxide was produced by combining zinc oxide with lead sulfate. The lead sulfate was obtained from outside sources. Waste materials generated included slag, rotary kiln residue, muffle dross, metallic zinc particles, and refractory brick.

#### 2.3 Previous Investigations

The site was listed on CERCLIS in 1981. IEPA conducted a Preliminary

Assessment in 1984. In 1980 and 1982 IEPA collected surface water samples for inorganic analysis. The water samples contained zinc, iron, lead and copper above state surface water standards and resulted in a Notice of Violation from IEPA. This resulted in Sherwin Williams removing approximately 18,000 tons of residue materials from 10 acres of the site. Analysis of residual materials by IEPA indicated that they were non-hazardous and not subject to RCRA (Resource Conversation and Recovery Act) permits.

In October 1993 IEPA conducted a CERCLA Expanded Site Inspection of the site and surrounding residential area. Samples collected onsite had elevated levels of arsenic, cadmium and lead. Some residential samples contained elevated levels of arsenic,

and the Illinois Department of Public Health indicated that levels of manganese were present that may pose a possible human health concern. Sediment samples collected had elevated levels of arsenic, cadmium, copper, lead and zinc.

Eagle Zinc entered into an Interim Consent Order with the Illinois Attorney

General and IEPA in May 1998. As a result nine shallow monitoring wells were installed and sampled as well as the sampling of residual piles and underlying soils.

The facility was issued a National Pollutant Discharge Elimination Systems (NPDES) permit on June 20, 2000. As a requirement a two cell retention system was constructed at the northeast area of the property that would enable the settling of particles from runoff prior to discharging into the east offsite drainage pathway. This drainage pathway lead to Lake Hillsboro. The permit was terminated on May 23, 2003 after plant closing.

ENVIRON International Corporation (ENVIRON) of Deerfield, Illinois conducted a Remedial Investigation of the Eagle Zinc Company site on behalf of the Potential Responsible Parties (PRP). This was undertaken as part of the Remedial Investigation/Feasibility Study (RI/FS) for the site. According to ENVIRON the RI/FS is being undertaken pursuant to the Statement of Work contained in the December 31, 2001 Administrative Order on Consent between the PRP's and the U.S. Environmental Protection Agency (USEPA). A RI/FS work plan was completed in July 2002 and the following documents were generated: 1) Technical Memorandum, Phase 1-Source Characterization, March 2003; 2) Technical Memorandum, Phase 2-Migration Pathway Assessment, November 2003; 3) Daft Human Health Risk assessment, August 2004; and

Draft Ecological Risk Screening Evaluation, August 2004; 4) Draft RI report, November, 2004; 5) Final RI report, March 2005. (6) Addendum to RI Report, April 2005, (7) Draft Feasibility Study Report, April 2005.

#### 2.4 Regulatory Status

Based upon available file information the Eagle Zinc Company site does not appear to be subject to Resource Conservation and Recovery Act (RCRA) corrective action authorities. Information currently available does not indicate that the site is under the authority of the Atomic Energy Act (AEA), Uranium Mine Tailings Action (UMTRCA), or the Federal Insecticide Fungicide or Rodenticide Act (FIFRA).

#### **SECTION 3.0 EXPANDED SITE INSPECTION ACTIVITIES**

#### 3.1 Sampling Activities

Sampling activities were conducted on April 25, 26, 27 and 27, 2005. IEPA personnel collected a total of twelve onsite waste pile samples, twenty-one offsite soil/cinder samples including background samples, and eight sediment and one background sediment samples along the drainage pathway from the site to Lake Hillsboro. All samples were collected using stainless steel trowels and/or hand augers. All duplicate sample containers were filled in an alternating manner. Following sample collection, all samples were transferred to containers provided by the Illinois EPA's Division of Laboratories. The sample containers were packaged and sealed in accordance with the IEPA's Office of Site Evaluation procedures. Sample analysis were provided by USEPA's Contract Laboratory Program

(CLP), which utilizes a network of various laboratories throughout the United States. A complete analytical data package, including quality assurance review sheets, is located in Appendix E (Volume 2 of the Expanded Site Addendum Inspection report).

All samples were collected and shipped in accordance with the IEPA and USEPA procedures. All samples were analyzed for the Target Compound List (TCL) in Appendix C. During the April 2005 inspection waste pile and sediment semi-volatile soil organic samples were analyzed by A4 Scientific and inorganic waste pile, soil and sediment samples were analyzed by Chemtech Consulting Group. All laboratories were under contract with USEPA Region 5. All laboratory results were subsequently validated by USEPA Region 5.

#### 3.2 Analytical Results

Sample locations are shown in Figure 4 and described in Tables 1, 2 and 3. Key sample analytical results from the sampling events are shown in Tables 4, 5 and 6. XRF soil, sediment and waste results are shown in Tables 7, 8 and 9. The analytical results for the soil samples were compared to Removal Action Levels (RAL's).

Key samples are samples in which contaminants were detected at concentrations at least three times background levels or had concentrations of potential health or environmental concerns. Samples meeting these criteria will be used to evaluate the site using the Hazard Ranking System (HRS). Analytes were found in offsite soil and sediment samples at levels that exceeded these health-based benchmarks. Analytes that exceeded health-based benchmarks included semivolatile compounds and inorganic substances.

#### **SECTION 4.0 SITE SOURCES**

This section includes descriptions of the various hazardous waste sources that have been identified at the Eagle Zinc Company site. The Hazard Ranking System defines a "source" as: "Any area where a hazardous substance has been stored, disposed or placed, plus those soils that have become contaminated from migration of hazardous substances". This does not include surface water or sediments below surface water that become contaminated.

Information obtained during the Expanded Site Inspection identified waste piles and contaminated soil as the source of contamination at Eagle Zinc Company. As additional information becomes available, the possibility exists that additional sources of contamination may exist.

#### 4.1 Waste Piles

Information obtained throughout the CERCLA investigation has identified onsite Waste piles as the primary source type at the Eagle Zinc Company site. The contamination was found at various locations throughout the site and the area of contamination is estimated to be approximately 35.72 acres. This is the area within sampling points X3101 – X303 – X304 – X305 – X306 – X307 – X308 – X310/X312 – X311 – X309- X313 – X301. See Figure 4 for sample locations. The analytical results from the samples collected onsite showed that a number of inorganic substances exceeded Removal Action Levels. These include cadmium, chromium, lead, zinc and others.

#### **Section 5.0 MIGRATION PATHWAYS**

The CERCLA program of Site Evaluation identifies three migration pathways and one exposure pathway, as identified in the Hazard Ranking System, by which hazardous substances may pose a threat to human health and/or the environment. Consequently, sites are evaluated on their known or potential impact to these pathways. The pathways are groundwater migration, surface water migration, soil exposure, and air migration.

#### 5.1 Groundwater Pathway

The geology of the area consists of approximately 50 to 100 feet of Pleistocene glacial till and outwash unconsolidated glacial deposits. Underlying the glacial deposits is bedrock consisting of the Pennsylvanian Bond Formation consisting mainly of limestone with some layers of shale and sandstone.

Groundwater use for drinking in the area is limited. The city of Hillsboro uses surface water for potable water. Some private wells are located within a quarter mile of the site but local residents are prohibited from connecting private wells into their household systems so that cross contamination can be avoided. The villages of Taylor Springs, located adjacent to the south side of Hillsboro, and Schram City, located adjacent to the east side of Hillsboro, obtain their drinking water from Hillsboro. Hillsboro also supplies water to portions of outlying areas through the Montgomery County Rural Water District. Areas not served by the Hillsboro water distribution system used groundwater for drinking. Groundwater flow in the vicinity of the site is not known.

The number of people who use groundwater in a four-mile radius of the site was estimated using information obtained from the Illinois EPA Public Water Supplies records,

USGS topographic maps and the average persons per household in Montgomery. The estimated population is:

**Estimated Groundwater Target Population** 

| Onsite           | 0   |
|------------------|-----|
| 0 to 1/4 mile    | 0   |
| >1/4 to 1/2 mile | 0   |
| >1/2 to 1 mile   | 17  |
| >1 to 2 miles    | 73  |
| >2 to 3 miles    | 129 |
| >3 to 4 miles    | 132 |

Since there is no nearby residential groundwater use no groundwater samples were collected during the April 2005 ESI Addendum inspection. Onsite monitoring well samples collected by ENVIRON in March 2003 indicate that some samples contained certain inorganic substances that exceeded TACO Class 1 groundwater standards. These included arsenic, cadmium, lead and zinc.

#### 5.2 Surface Water Pathway

This pathway begins where surface water run-off from the site enters the first perennial water body. This is the Probable Point of Entry (PPE) into surface water. This pathway then travels fifteen miles downstream from the PPE completing the 15-mile Target Distance Limit (TDL).

Eagle Zinc Company would drain surface runoff into two different routes. The

western surface water pathway drains the southwest area of the property into an onsite pond. The overflow from the pond joins with a ditch which runs along the south side of the site. The ditch on the south side has waste piles from the site along its north bank. The pathway then flows west into an intermittent stream and then north approximately one mile into Middle Fork Shoal Creek, a perennial waterway. This is one PPE into surface water.

The second surface water pathway is located at the northeast area of the site and drains much of the northern portion of the property. The pathway originates in a field at the north portion of the site and flows northeast for approximately one-half mile and enters Lake Hillsboro. This is the Probable Point of Entry (PPE) into surface water that will be evaluated for this site. Lake Hillsboro is used locally as a drinking water source and for recreational activities such as fishing and boating. The surface water intake for the lake is located approximately one mile downstream from the PPE. Water from Lake Hillsboro and Lake Glenn Shoals are blended and used as a drinking water source for Hillsboro, Schram City, Taylor Springs, Coffeen, Graham Correctional Center and the Montgomery County Rural Water District. Lake Glenn Shoals is not located along the sites' surface water pathway. The proportion supplied by Lake Hillsboro varies according to the season but the Plant Water Operator and Supervisor estimates that it would be approximately twenty percent of the yearly average. The two lakes supply water to a total of 8,959 people, with Lake Hillsboro supplying an annual average of 1,792 people.

The 15-mile Target Distance Limit extends approximately one mile in Lake

Hillsboro, ten miles in Middle Fork Shoal creek and four miles in Shoal Creek. According to
the Flood Hazard Boundary Map the site is not located in any floodplain. The nearest

wetlands are the three ponds located onsite and are classified as a Palustrine unconsolidated bottom intermittently exposed diked/impounded wetland. There are approximately 18 miles of wetland frontage along the fifteen-mile surface water pathway in Lake Hillsboro and Middle Shoal creek. According to the Illinois Department of Natural Resouces there are no threatened or endangered species within a mile of the site or in the 15 mile downstream mileage.

Sediment samples collected onsite and along the drainage pathway leading to Lake Hillsboro during the inspection contained a number of semi-volatile and inorganic substances that are attributable to the site. These include samples X202, X203/X204, X205, X206, 207, X208, X209 and X210. These substances exceeded sediment background sample X201 collected from Lake Hillsboro north of the site. They also exceed Ontario Sediment thresholds. Contaminants found include benzo(b)fluoranthene, benzo(g,h,l)perylene, cadmium, lead, nickel and zinc. The Probable Point of Entry (PPE) into surface water is sample X210 collected at the point where the offsite drainage enters Lake Hillsboro.

#### 5.3 Soil Exposure Pathway

This exposure pathway focuses on contaminated soil in the upper two feet of the ground surface and within 200 feet of an occupied residence.

Eagle Zinc Company is situated at the northeast side of Hillsboro, IL. Access is partially limited by fencing and a locked gate. Private residences are located approximately 300 feet near the west-side of the site across Brailly Road. The nearest worker is approximately 250 feet south in the businesses located on the north side of Route 16. The rearest school is located approximately nine-tenths of a mile southwest of the site in

Hillsboro. A review of USGS topographic maps, city maps and U.S. Census data indicate that there are approximately 3,459 people that live within a one-mile radius of the site. The estimated population within one mile of the site is:

| Onsite      | 0     |
|-------------|-------|
| 0 to ¼ mile | 283   |
| ¼ to ½ mile | 697   |
| ½ to 1 mile | 2,479 |

Soil samples collected during the 2005 Expanded Site Inspection Addendum document areas of observed contamination by contaminants that are attributable to the site. These included a number of inorganic substances, including cadmium, lead and zinc. The property is partially fenced to prevent unauthorized access although trespassers can enter from breaks in the fence or through the west side. The property has a locked gate but there is no guard of watchman overseeing the property.

#### 5.4 Air Pathway

The Eagle Zinc Company property is sparsely vegetated with exposed piles of wastes. During the April 2005 ESI Addendum inspection dust was observed blowing from some of the piles. The site is fenced with a locked gate and access is limited. Access by car or truck is not possible although it may be possible to access the site by ATV. There are no workers onsite. Houses are located approximately 300 feet west and the nearest school is located approximately nine-tenths of a mile southwest of the site in Hillsboro. Graham Correctional Center is located approximately two miles south and has about 1,400 inmates

and workers. There are approximately 7,346 people who live within a 4-mile radius of the site. The estimated population potential for release is:

**Estimated Air Target Population** 

| Onsite          | 0     |
|-----------------|-------|
| 0 to ¼ mile     | 283   |
| 1/4 to 1/2 mile | 697   |
| ½ to 1 mile     | 2,479 |
| 1 to 2 miles    | 2,167 |
| 2 to 3 miles    | 1,588 |
| 3 to 4 miles    | 132   |

Wetland inventory maps indicate that there is approximately 17 acres of wetlands located within a half-mile of the site.

#### SECTION 6 ADDITIONAL RISK BASED OBJECTIVES

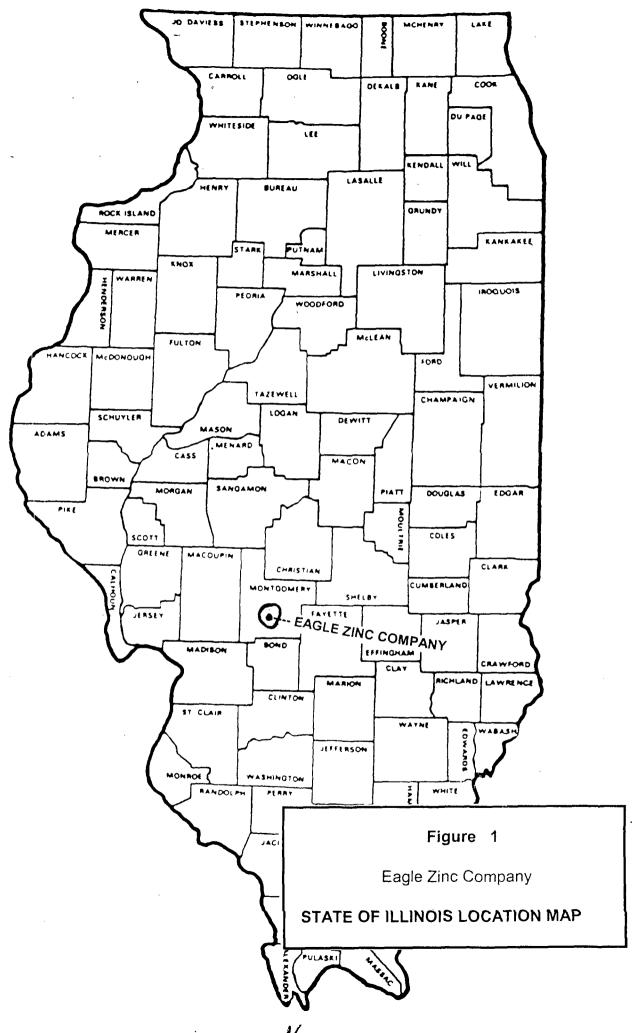
This section discusses additional screening objectives used to evaluate the Eagle Zinc Company site. These objectives have not been used to assess the site for Hazard Ranking System (HRS) purposes.

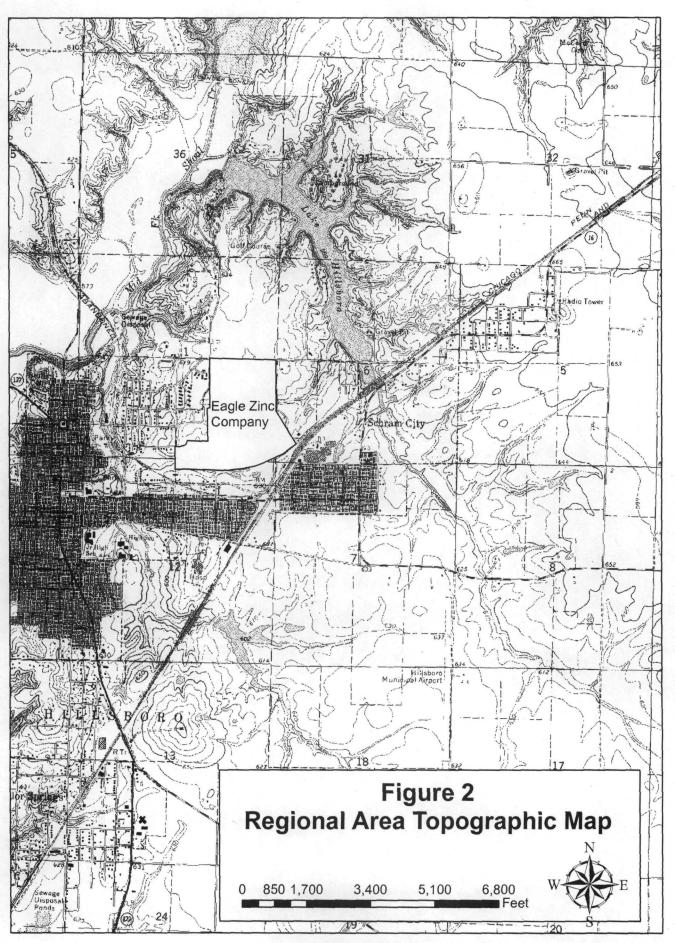
#### 6.1 Ontario Sediment and USEPA ECOTOX Threshhold Benchmarks

Sediment samples collected in the drainage pathway leading to Lake Hillsboro were compared to Ontario Sediment (low level) and USEPA ECOTOX. Threshold benchmarks. Several sediment samples exceeded these benchmarks for inorganic substances. They included arsenic, cadmium, lead and zinc.

#### **SECTION 7.0 REFERENCES**

- IEPA BOL Files. CERCLA Expanded Site Inspection Report for Eagle Zinc Co., 1994.
- ENVIRON International Corporation. Remedial Investigation Report for Eagle Zinc Company Site, Hillsboro, IL. November 2004.
- Illinois Department of Natural Resources. Endangered Species Information Request letter of September 1, 2005 for Eagle Zinc Co.
- United States Department of the Interior, National Wetlands Inventory Maps for Hillsboro, Butler and Sorento North, IL. Quadrangles, 7.5 minute series.
- USGS, 1974, Butler, IL. Quadrangle, 7.5 minute series.
- USGS, 1974, Sorento North, IL. Quadrangle, 7.5 minute series.
- USGS, 1974, Hillsboro, IL. Quadrangle, 7.5 minute series.
- USGS, 1974, Coffen, IL. Quadrangle, 7.5 minute series.
- U S. Census Bureau, American FactFinder website. Table GCT-H6. Occupied Housing Characteristics: 2000.
- Illinois Environmental Protection Agency, Division of Public Water Supplies. Public Water Supply Data Sheet for Facility No. 1350300 Hillsboro Montgomery County. Inspection date: March 31, 2005.
- Phone conversation with Roger Fath, Operator and Water Treatment Plant Supervisor for the city of Hillsboro, July 21, 2005 concerning relative contributions of Lakes Hillsboro and Glenn Shoals to local water supply.
- IEPA Site Reconnaissance visit of March 16, 2005 to Eagle Zinc Co.
- Flood Hazard Boundary Map, Montgomery County, Il. Panel 6 of 9. Federal Emergency Management Agency, January 9, 1981.





Souce:United States Geological Survey Topographical Map in Digital Raster Graphic Format, 1:100,000 Scale Quadrangle Index # 39089b44

# Figure 3 Eagle Zinc Company

# Aerial Photograph



0 0.05 0.1 0.2 0.3 0.4 ■ Miles Source: Illinois Department of Natural Resources Geospatial Data Clearinghouse: Digital Orthographic Quadrangles, 1999, accessed 2005

### Legend

Site Boundary





Figure 4
Eagle Zinc Company
Sample Location Map

Legend

- O Se
- O Sediment
- Waste
- Site Boundary



0 0.05 0.1 0.2 0.3 0.4 Miles

Source: Illinois Department of Natural Resources Geospatial Data Clearinghouse: Digital Orthographic Quadrangles, 1999, accessed 2005

|                                     | OFFRITE SOU A           | TABLE 1 WASTE SAMPLE DESCRIPTIONS                       |
|-------------------------------------|-------------------------|---|
|                                     | 01131123012             |   |
| X101                                |                         | Not collected   |
| X102                                |                         | Not collected.  |
| X103                                |                         | Not collected.  |
| <b>X104</b><br>4/27/2005<br>11:40   | Inorganics - 0 to 1"    | Brown-black clay.                                       |
| X105/<br>X115<br>4/27/2005<br>14:10 | Inorganics - 1/2" to 3" | Cinders, slag material, black fines. Duplicate samples. |
| <b>X106</b><br>4/27/2005<br>12:00   | Inorganics - 0 to 2"    | Brown-black clay loam.                                  |
| <b>X107</b><br>4/27/2005<br>10:50   | Inorganics - 0 to 1"    | Slag material over clay.                                |
| <b>X108</b><br>4/27/2005<br>12:30   | Inorganics - 0 to 2"    | Light brown clay loam.                                  |
| <b>X109</b><br>4/27/2005<br>17:20   | Inorganics - 0 to 2"    | Brown silty clay.                                       |
| <b>X110</b><br>4/27/2005<br>10:10   | Inorganics - 0 to 2"    | Gravel, black fill material, cinders, metal pieces.     |
| <b>X111</b><br>4/27/2005<br>9:30    | Inorganics - 0 to 1"    | Black silty loam.                                       |
| <b>X112</b><br>4/27/2005<br>9:50    | Inorganics 0 - 2"       | Reddish brown cinders and slag.                         |
| <b>X113</b><br>4/26/2005<br>12:50   | Inorganics 1" - 3"      | A mixture of black cinders and Soil.                    |

# TABLE 1 OFFSITE SOIL/WASTE SAMPLE DESCRIPTIONS (Continued)

|                                     | T 5===:                 |   |
|-------------------------------------|-------------------------|---|
| SAMPLE                              | DEPTH                   | APPEARANCE  |
| X114<br>4/27/2005<br>12:50          | Inorganics - 0 to 3"    | Light brown clay loam.                                  |
| X115/<br>X105<br>4/27/2005<br>14:10 | Inorganics - 1/2" to 3" | Cinders, slag material, black fines. Duplicate samples. |
| <b>X116</b><br>4/27/2005<br>14:50   | Inorganics - 0 to 3"    | Brown gray silty clay.                                  |
| X117                                |                         | Not collected.  |
| <b>X118</b><br>4/27/2005<br>15:50   | Inorganics - 1" to 3"   | Dark brown silty clay.                                  |
| <b>X119</b><br>4/28/2005<br>9:40    | Inorganics - 0 to 2"    | Black silty loam.                                       |
| X120/<br>X121<br>4/28/2005<br>8:40  | Inorganics - 0 to 1"    | Light brown silty clay.<br>Duplicate samples.           |
| <b>X122</b><br>4/27/2005<br>19:20   | Inorganics - 2" to 3"   | Brown silty loam, some roots.                           |
| <b>X123</b><br>4/27/2005<br>18:50   | Inorganics - 0 to 3"    | Black silty loam with cinders.                          |
| <b>X124</b><br>4/27/2005<br>18:00   | Inorganics - 3" to 6"   | Fine black slag material.                               |
| <b>X125</b><br>4/27/2005<br>17:40   | Inorganics - 0 - 3"     | Black loam with medium size gravel.                     |
| <b>X126</b><br>4/28/2005<br>9:00    | Inorganics - 0 - 1"     | Dark brown silty clay.                                  |

## TABLE 2 SEDIMENT DESCRIPTIONS

| SAMPLE                            | DEPTH                                     | APPEARANCE   |
|-----------------------------------|---|--|
| <b>X201</b><br>4/27/2005<br>15:20 | Inorganics - 2" to 4"<br>Semi - 2" to 4"  | 0 to 6" - Brownish gray silty clay.  |
| <b>X202</b><br>4/27/2005<br>8:50  | Inorganics - 0 to 2"<br>Semi - 4"         | 0 to 3" - Gray silty clay.<br>3" to 6" - Light tan silty clay.   |
| <b>X203/ X204</b> 4/26/2005 18:40 | Inoganics - 0 to 2"<br>Semi - 1" to 3"    | 0 to 3" - Brown silty clay.  |
| <b>X205</b><br>4/26/2005<br>17:40 | Inorganics - 0 to 1/2"<br>Semi - 2" to 4" | 0 to 3" - Brown silty clay. 3" to 6" - Brownish gray silty clay, roots. 6" - Brownish gray silty clay, roots.  |
| <b>X206</b><br>4/26/2005<br>17:00 | Inorganics - 3" to 5"<br>Semi - 3" to 5"  | 0 to 3" - Brown silty clay. 3" to 6" - Brown clay,some silt, few medium rocks. 6" to 12" - Brown gray clay, little silt.                                     |
| <b>X207</b><br>4/26/2005<br>15:00 | Inorganics - 3" to 4"<br>Semi - 4"        | 0 to 3" - Brown silt, a little sand and clay. 3" to 6" - Brown silt, a little sand and clay. 6" - Brown silt, a little sand and clay.                        |
| <b>X208</b><br>4/26/2005<br>14:30 | Inorganics - 0 to 2"<br>Semi - 4"         | 0 to 3" - Brown silt.<br>3" to 6" - Sand, some brown clay.<br>6" - Sand, some brown clay.  |
| <b>X209</b><br>4/26/2005<br>13:40 | Inorganics - 0 to 3"<br>Semi - 4"         | 0 to 3" - Brown silty clay; some organic matter. 3" to 6" - Brownish gray silty clay; more organic matter and some sand. 6" - Silty clay with a little sand. |
| <b>X210</b><br>4/26/2005<br>10:30 | Inorganics - 3" to 5"<br>Semi - 3" to 5'  | 0 to 3" - Brownish gray silty clay.<br>3" to 6" - Brownish gray silty clay with some<br>organic matter.  |

|                                    | Onsite W                                    | TABLE 3 aste Sample Descriptions  |
|------------------------------------|---|---|
|                                    |   |   |
| SAMPLE                             | DEPTH                                       | APPEARANCE  |
| <b>X301</b><br>4/25/2005<br>15:20  | Inorganics - 0 to 2"<br>SVOC's - 4"         | Fine black cinder material collected from a pile onsite.                        |
| <b>X302</b><br>4/25/2005<br>15:40  | 0 to 2"<br>SVOC's - 4"                      | Fine black cinder material collected from a pile onsite.                        |
| <b>X303</b><br>4/25/2005<br>16:00  | Inorganics - 0 to 2"<br>SVOC's - 4"         | Brownish - grey fine slag material collected from a pile onsite.                |
| <b>X304</b><br>4/25/2005<br>16:10  | Inorganics - 0 to 2"<br>SVOC's - 4"         | Orange - brown slag fines collected from a pile onsite.                         |
| <b>X305</b><br>4/25/2005<br>16:30  | Inorganics - 0 to 2"<br>SVOC's - 4"         | Black - brown slag fines collected from a pile onsite.                          |
| <b>X306</b><br>4/25/2005<br>17:20  | Inorganics - 0 to 1/2"<br>SVOC's - 4"       | Grey slag and cinder material collected from a pile onsite.                     |
| X307<br>4/25/2005<br>17:40         | Inorganics - 0 to 1/2"<br>SVOC's - 4"       | Brown - grey slag fines; some brick shardscollected from a pile onsite.         |
| <b>X308</b><br>4/25/2005<br>18:15  | Inorganics - 0 to 1/2"<br>SVOC's - 4"       | Light -grey slag fines collected from a pile onsite.                            |
| <b>X309</b><br>4/26/2005<br>8:10   | Inorganics - 0 to 1/2"<br>SVOC's - 4"       | Medium grey slag fines with metal shavings collected from a pile onsite.        |
| X310/<br>X312<br>4/26/2005<br>8:45 | Inorganics - 0 to 1/2"<br>SVOC's - 4"       | Fine medium grey slag material collected from a pile onsite. Duplicate samples. |
| <b>X311 4/26/2005</b> 8:30         | Inorganics - 0 to 1/2"<br>SVOC's - 2 to 3"  | Medium grey slag fines collected from a pile onsite.                            |
| <b>X313</b><br>4/26/2005<br>9:30   | Inorganics - 0 to 1/2"<br>SVOC's - 3" to 4" | Light grey slag fines, some coarse white slag.                                  |

| Date Sampled : 4/27/05  | MANGANESE<br>NICKEL<br>THALLIUM | 1380<br>10.5<br>3.1  | Ü  | 1380            | <del>-</del>   | 798<br>         | 958                          | 8.6<br>3.1      | -<br>-<br>U -                          | 728             | -               |                 | 809<br>439   | <u>-</u>   | 1,600       |
|---|---------------------------------|--|----|-----------------|--|-----------------|------------------------------|-----------------|--|-----------------|-----------------|-----------------|--|--|-------------|
| Date Sampled : 4/27/05  | LEAD                            | 34.4   |    | -               | 408  |                 | 155                          | 50              |  | 267             | 164             | 417             | 401  | 287  | 1,000       |
| Date Sampled: 4/27/05 |                                 |  |    |                 | THE RESERVE THE PROPERTY OF THE PARTY OF THE |                 | CONTRACTOR OF THE OWNER, CO. |                 | AND DESCRIPTION OF THE PERSON NAMED IN |                 |                 |                 | AND ADDRESS OF THE PARTY OF THE | The same of the sa | 25<br>5,000 |
| Date Sampled : 4/27/05 4/27/05 4/27/05 4/27/05 4/27/05 4/27/05 4/27/05 4/27/05 4/27/05 4/27/05 4/27/05 4/27/05  | ANTIMONY                        | 7.5  | UJ | - 0             |  |                 | -                            | <b>.</b>        |  | =               | 4-              |                 | 22.2   | -  | 5 mark 22 1 |
| O TO LOUIS VAND VAND VAND VAND VAND VAND VAND VAND  |                                 | The state of the s |    | X104<br>4/27/05 | X105<br>4/27/05  | X106<br>4/27/05 | X107<br>4/27/05              | X108<br>4/27/05 | X109<br>4/27/05                        | X110<br>4/27/05 | X111<br>4/27/05 | X112<br>4/27/05 | X113<br>4/27/05  | X114<br>4/27/05  | RAL's       |

| Eagle Zinc Company<br>ILD 908606941                 |                             |      |                 |                 |   |                 |   |                 |   |                 |    | Key Sam<br>(Continue | ples |                 |     |                 |                 |   | 1       |
|---|-----------------------------|------|-----------------|-----------------|---|-----------------|---|-----------------|---|-----------------|----|----------------------|------|-----------------|-----|-----------------|-----------------|---|---------|
| Sampling Location :<br>Date Sampled :<br>INORGANICS | X118<br>4/27/05<br>(Backgro | und) | X115<br>4/27/05 | X116<br>4/27/05 |   | X119<br>4/28/05 |   | X120<br>4/28/05 |   | X121<br>4/28/05 |    | X122<br>4/27/05      |      | X123<br>4/27/05 |     | X124<br>4/27/05 | X125<br>4/27/05 | X126<br>4/28/05                         | RAL's   |
| ANTIMONY  | 7.5                         | UJ   | -               | 1.4             | J | -               |   |                 |   |                 |    | 1.2                  | J    | 11.2            | J   | 8.6             | J 1.9           | J -                                     | 4       |
| CADMIUM   | 0.97                        |      | 34.6            | 0.53            | J | 9.1             |   | 1.3             |   | 0.45            | J  |                      |      | 19.2            |     | 12.8            | 6.7             |   | 25      |
| COPPER  | 10.8                        |      | 219             | 13.3            |   | 57.8            |   | 17.3            |   | 15              | S. | _                    |      | 163             |     | 375             | 62.8            | -                                       | 5,000   |
| LEAD  | 34.4                        |      | 469             | 27.1            |   | 273             | J | 48.8            | J | 37.9            | J  | 213                  | J    | 534             |     | 2450            | 218             |   | 1,000   |
| MANGANESE   | 1380                        |      |                 | 1500            |   | -               | J | 667             | J | 781             | J  | 1260                 | J    | 1050            |     | _               | 781             | <b>-</b> -                              |         |
| NICKEL  | 10.5                        |      |                 | 15.1            |   |                 |   | 15              |   | 12.6            |    |                      |      | 31              |     |                 |                 |   | 1,600   |
| THALLIUM  | 3.1                         | U    |                 | -               |   |                 |   |                 |   |                 |    | -                    |      | 2.6             | J   |                 |                 |   | 55      |
| ZINC  | 595                         |      | 22400           | 397             |   | 6030            |   | 461             | - | 264             |    |                      |      | 2220            |     | 13200           | 2830            |   | 160,000 |
| CYANIDE   | 0.21                        | UJ   |                 |                 |   | 0.25            | J | 0.19            | J | 0.21            | J  | 1.4                  | J    | -               | No. | 4               |                 | 0 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - | 350     |
|   | mg/Kg                       | 666  | mg/Kg           | mg/Kg           |   | mg/Kg           |   | mg/Kg           |   | mg/Kg           |    | mg/Kg                |      | mg/Kg           |     | mg/Kg           | mg/Kg           | mg/Kg                                   | mg/Kg   |

| Eagle Zinc Company<br>ILD 908606941          |                               |    |                 |                 |                 |   |                 |                 |                 | men | <b>5</b><br>t Samples |           |                 |               |                 |          |                 |     |                 |   |                    |                 |
|--|-------------------------------|----|-----------------|-----------------|-----------------|---|-----------------|-----------------|-----------------|-----|-----------------------|-----------|-----------------|---------------|-----------------|----------|-----------------|-----|-----------------|---|--------------------|-----------------|
| Sampling Location :<br>Date Sampled :<br>(Ba | X201<br>4/27/05<br>ackground) |    | X202<br>4/27/05 |                 | X203<br>4/26/05 |   | X204<br>4/26/05 |                 | X205<br>4/26/05 |     | X206<br>4/26/05       |           | X207<br>4/26/05 |               | X208<br>4/26/05 |          | X209<br>4/26/05 |     | X210<br>4/26/05 | 1 | Ontario<br>ediment | USEPA<br>Ecotox |
| Benzo(b)fluoranthene                         |                               |    | (60)±05         |                 |                 |   |                 |                 |                 |     |                       |           | 59              | J             | -               |          |                 |     | -74             |   | _                  |                 |
| Benzo(g,h,I)perylene                         | -                             |    |                 |                 |                 |   | -               |                 |                 |     | -                     |           | 48              | J             | -               |          | 83              | J   | -               |   |                    | -               |
| Fluoranthene                                 | -                             |    |                 |                 |                 |   | 62              | J               | _               |     | -                     |           | -               |               |                 |          |                 |     |                 |   |                    | 2900            |
|  | ug/Kg                         |    | ug/Kg           |                 | ug/Kg           |   | ug/Kg           |                 | ug/Kg           |     | ug/Kg                 |           | ug/Kg           |               | ug/Kg           |          | ug/Kg           |     | ug/Kg           |   |                    | No.             |
| INORGANICS:                                  |                               |    |                 |                 |                 |   |                 |                 |                 |     |                       |           |                 |               |                 |          |                 |     |                 |   |                    |                 |
| ANTIMONY                                     | 16.1                          | UJ | 21.9            | J               | 5.1             | J | 7.3             | J               | 7.7             | J   |                       |           | 3.1             | J             | 0 <u>2</u> 3    | 57.5     | 6               | J   | //44            |   |                    | _               |
| ARSENIC                                      | 7.1                           | J  | 6.3             | J               | 7.2             | J | 8.3             | J               | 13.2            |     |                       | 251101000 | 11.9            | 00.0000000    |                 | 0.000000 | 26.4            |     |                 |   | 6                  |                 |
| CADMIUM                                      | 1.4                           |    | 13.2            |                 | 15.9            |   | 14.2            |                 | 14.3            |     | 5.8                   |           | 3.4             | <b>ATTRIB</b> | 12.6            |          | 7               | 8   | 16.1            |   | 0.6                | -               |
| COBALT                                       | 5.8                           | J  | -               |                 |                 |   | 20.1            |                 | 23.2            |     |                       |           |                 |               |                 |          | 49.9            |     |                 |   | 50                 | -               |
| COPPER                                       | 95.5                          |    | 297             |                 | 203             |   | 238             |                 | 144             |     | 34.7                  |           | 51.8            |               | 41.6            |          | 65              |     | 81.5            |   | 16                 | -               |
| IRON   | 11300                         |    |                 |                 | -               |   |                 |                 | 23200           |     |                       |           | 21200           |               |                 |          | 34300           |     |                 |   | 20,000             |                 |
| LEAD   | 45.6                          |    | 630             |                 | 383             |   | 439             |                 | 769             |     | 121                   |           | 188             |               | 109             |          | 333             | 200 | 142             |   | 31                 | -               |
| MANGANESE                                    | 1040                          |    |                 |                 |                 |   |                 |                 | 3100            |     | 575                   |           | 979             |               |                 |          | 3640            |     |                 |   | 460                |                 |
| NICKEL                                       | 11.7                          |    | 144             |                 | 67.6            |   | 76.4            |                 | 48              |     | -                     |           | -               |               |                 |          | 24.7            |     |                 |   | 16                 |                 |
| SILVER                                       | 2.7                           | U  |                 | and the last of | 1.8             |   | 1.7             | Ome and a local | 0.51            | J   |                       |           |                 |               |                 |          |                 |     | -               |   | 0.5                |                 |
| ZINC   | 1080                          |    | 26600           |                 | 29100           |   | 31300           |                 | 13400           |     | 5300                  |           | 7870            |               | 3910            |          | 7350            |     | 8120            |   | 120                |                 |
| CYANIDE                                      | 0.33                          | UJ |                 |                 |                 |   |                 |                 | 0.38            | J   | 0.1                   | J         | 0.09            | J             | 0.12            | J        | 0.12            | J   | 0.33            | J | 0.1                | -               |
| pH   | 6.3                           |    | 6.8             |                 | 6.6             |   | 6.5             |                 | 6.6             |     | 6.5                   |           | 6.7             |               | 6.9             |          | 5.9             |     | 5.9             |   | _                  | -               |
|  | mg/Kg                         |    | mg/Kg           |                 | mg/Kg           |   | mg/Kg           |                 | mg/Kg           |     | mg/Kg                 |           | mg/Kg           |               | mg/Kg           |          | mg/Kg           |     | mg/Kg           |   | mg/Kg              | mg/Kg           |

| Eagle Zinc Company<br>ILD 908606941   |  |                 |                 |                 |                    | TAB<br>Waste Pile | LE 6<br>Key Samples |  |                 |                 |                 |                 |                 |  |
|---------------------------------------|--|-----------------|-----------------|-----------------|--------------------|-------------------|---------------------|--|-----------------|-----------------|-----------------|-----------------|-----------------|--|
| Sampling Location :<br>Date Sampled : | X301<br>4/25/05  | X302<br>4/25/05 | X303<br>4/25/05 | X304<br>4/25/05 | X305<br>4/25/05    | X306<br>4/25/05   | X307<br>4/25/05     | X308<br>4/25/05  | X309<br>4/26/05 | X310<br>4/26/05 | X311<br>4/26/05 | X312<br>4/26/05 | X313<br>4/26/05 | RAL's  |
| SEMIVOLATILES:                        |  |                 |                 |                 |                    |                   |                     |  |                 |                 |                 |                 |                 |  |
| Phenol                                | 48   | J -             |                 | )               | 1000 <b>L</b> 1000 |                   | 2                   |  |                 |                 | -               | 4 C S           | -               | 470,000,00   |
| Phenanthrene                          | 61 .   | J               | -               |                 | -                  | -                 | 90 J                |  | -               |                 | -               |                 | -               | 1,000,000  |
| Fluoranthene                          | STREET, STREET | J 71            | J -             | -               | -                  |                   | 250 J               | -  |                 |                 |                 |                 | 74 .            | Section Security of the Print of the Party o |
| Pyrene                                |  | J 54            | J               | -               |                    |                   | 170                 |  |                 |                 | -               | -               | 49 .            | The state of the second second second  |
| Benzo(a)anthracene                    | The second second second second second   | J -             | -               |                 |                    | 1447-1            | 88                  | -  |                 |                 | 4               | _               |                 | 1,000,000  |
| Chrysene                              |  | J 40            | J               |                 |                    |                   | 150 J               | THE RESERVE OF THE PARTY OF THE |                 |                 |                 |                 | 66 .            | 1,000,000  |
| Benzo(b)fluoranthene                  | 110  | J 41            | J -             |                 |                    |                   | 130                 | 4  |                 |                 | -2              |                 | 68 .            | J  |
| Benzo(k)fluoranthene                  | -  |                 |                 |                 | -                  | -                 | 57                  |  |                 | -               | -               | -               |                 | 1,000,000  |
| Benzo(a)pyrene                        | 43   | J -             |                 |                 | -                  | _                 | 65 J                | 11 12 0 <del>-</del>   |                 |                 | -               | _               |                 | 1,000,000  |
| Benzo(g,h,l)perylene                  | 00   | J               |                 | -               |                    |                   | 50                  |  |                 | -               |                 | - 1             | -               | 1,000,000  |
|                                       | ug/Kg  | ug/Kg           | ug/Kg           | ug/Kg           | ug/Kg              | ug/Kg             | ug/Kg               | ug/Kg  | ug/Kg           | ug/Kg           | ug/Kg           | ug/Kg           | ug/Kg           | ug/kg  |
| INORGANICS:                           |  |                 |                 |                 |                    |                   |                     |  |                 |                 |                 |                 |                 |  |
| ALUMINUM                              | 6860   | 4000            | 5530            | 4490            | 3910               | 4890              | 4150                | 41400  | 39800           | 75500           | 47200           | 58600           | 4840            | 310  |
| ANTIMONY                              | 13.3   | 13              | 28.6            | 355             | 13.1               | 6.7               | 320                 | 429  | 665             | 628             | 621             | 608             | 109             | -  |
| ARSENIC                               | 11.1   | 7               | 158             | 124             | 37.1               | 26.7              | 141                 | 48.1   | 34.2            | 61.1            | 52.6            | 53.4            | 175             | 200  |
| CADMIUM                               | 88.5   | -               | 67.4            | -               | 30.4               | 17.6              | 152                 | 2012   | 60.5            | 29              | 42              | 34.9            | 97.8            | 25   |
| CHROMIUM                              |  |                 |                 |                 |                    |                   |                     | 902  |                 | 1460            | 1620            | 1480            |                 | 400  |
| COBALT                                | 18.9   | 417             | 30.2            | 103             | 16.5               | 12.5              | 10.7                | 60.9   | 34.5            | 114             | 79.9            | 72.8            | 21              |  |
| COPPER                                | -  |                 | 4               |                 |                    |                   | -                   | 21900  | 33100           | 20300           | 19800           | 23900           |                 | 5000   |
| LEAD                                  | 3190   |                 | 5680            | 36500           | 7860               | 7390              | 7230                | 20300  | 13000           | 16800           | 18400           | 16400           | 29100           | 1,000  |
| MANGANESE                             | 517  | 374             | 231             | 5200            | 151                | 188               | 492                 | 707  | 1280            | 1080            | 938             | 1120            | 471             |  |
| NICKEL                                |  |                 | -               | -               | -                  |                   |                     | 9100   | 5350            | 17200           | 13000           | 9110            |                 | 1,600  |
| ZINC                                  | -  | 391000          | _               |                 |                    |                   | 194000              | 381000   | 258000          | 383000          | 407000          | 354000          | 387000          | 160,000  |
| pH                                    | 6.6  | 6.5             | 6.8             | 6.4             | 6.4                | 6.8               | 5.9                 | 5.8  | 6.1             | 6               | 6.7             | 6.5             | 6.2             | -  |
|                                       | mg/Kg  | mg/Kg           | mg/Kg           | mg/Kg           | mg/Kg              | mg/Kg             | mg/Kg               | mg/Kg  | mg/Kg           | mg/Kg           | mg/Kg           | mg/Kg           | mg/Kg           | mg/Kg  |

NOTE: No background sample was collected to compare these samples against.

| Eagle Zinc Co<br>ILD 98060694 |                     |                   |   |                         | XRF         | TABLE 7<br>Sample Sur<br>(Soil) | mmary                        |                          |                |                   |                     |             |
|-------------------------------|---------------------|-------------------|---|-------------------------|-------------|---------------------------------|------------------------------|--------------------------|----------------|-------------------|---------------------|-------------|
| Sample No.                    | Depth               | XRF No.           | Date/Time   | Pb                      | As          | Hg                              | Zn                           | Cu                       | Ni             | Mn                | Cr                  | Ва          |
| X104                          | 0 to 1"             | 186               | 4/27/2005 12:43                                       | 85                      | -           |                                 | 13888                        | -                        | -//            | 4-16              |                     | -           |
| X106                          | 0 to 2"             | 191               | 4/27/2005 13:12                                       | - 15                    |             |                                 | 490.8                        | <del>-</del>             |                | - ·               | <b>,-</b> -         | - 1         |
| X107                          | 0 to 1"             | 183               | 4/27/2005 11:44                                       | 143.2                   |             | -                               | 11897.6                      | 491.6                    |                |                   | 16 F9 <b>-</b> -    | -11         |
| X108                          | 0 to 2"             | 194               | 4/27/2005 13:32                                       | -                       | -           |                                 | 312.2                        | -                        | _              |                   |                     | -           |
| X109                          | Surface<br>3"<br>6" | 211<br>212<br>213 | 4/27/2005 18:14<br>4/27/2005 18:15<br>4/27/2005 18:18 | 35<br><br>37.5          | -           | -<br>-<br>-                     | 365.6<br>940<br>629.6        | -                        | <br>           | <br><br>          |                     |             |
| X110                          | 0 to 2"             | 182               | 4/27/2005 11:22                                       | 205.8                   | -           | -                               | 8819.2                       | -                        | -              | 30% <b>-</b> 08   | - 3 <u>-</u>        | - 1         |
| X111                          | 0 to 1"             | 175               | 4/27/2005 10:29                                       | 107.6                   | -           | -                               | 1480                         | -                        | 402.8          |                   |                     | -           |
| X112                          | Surface<br>6"       | 177<br>178        | 4/27/2005 10:48<br>4/27/2005 10:50                    | 190.2<br>106.4          | -<br>-      |                                 | 4819.2<br>5568               | -                        | 1309.6         |                   | 150/ <del>-</del> - | <br>        |
| X113                          | Surface<br>3"<br>6" | 125<br>126<br>127 | 4/26/2005 13:49<br>4/26/2005 13:51<br>4/26/2005 13:56 | 460.8<br>474.4<br>314.2 | -<br>-<br>- | =                               | 42880<br>55961.6<br>113971.2 | 760.4<br>850.4<br>3628.8 | 1880<br>2059.2 | <br>1840<br>      | <br>                | -<br>-      |
| X114                          | Surface<br>3"<br>6" | 195<br>196<br>197 | 4/27/2005 14:00<br>4/27/2005 14:03<br>4/27/2005 14:06 | 157.5<br>163.3<br>155.6 | -<br>       | -                               | 14489.6<br>7769.6<br>4668.8  |                          | 2169.6         | <br>1120          | 606.8               | -           |
| X115/X105                     | Surface<br>3"       | 200 201           | 4/27/2005 15:10<br>4/27/2005 15:16                    | 473.6<br>301.8          | -           | -<br>-                          | 21593.6<br>24000             | <del>-</del>             | -              | -                 |                     | -           |
| X116                          | Surface 3"          | 202<br>203        | 4/27/2005 15:44<br>4/27/2005 15:45                    | -                       | -           | -                               | 279.2<br>350.2               | 1 <u>-</u>               | -              |                   | -                   | -           |
| X118                          | Surface<br>3"       | 206<br>207        | 4/27/2005 16:55<br>4/27/2005 16:57                    | -                       | 46.4        | <u>-</u>                        | 450.4<br>334                 | -                        | -              | <br>555.6         | -                   | -<br>-      |
| X119                          | Surface<br>3"<br>6" | 240<br>241<br>242 | 4/28/2005 10:31<br>4/28/2005 10:34<br>4/28/2005 10:37 | 35.6<br>71.9<br>50.8    | -<br>-<br>- | <br>                            | 6137.6<br>3379.2<br>1320     | <u>-</u>                 | <br>           | <br><br>          | <br>                | -<br>-<br>- |
| X120/X121                     | Surface<br>3"       | 236<br>237        | 4/28/2005 9:39<br>4/28/2005 9:42                      | 40.7                    | <u>-</u>    | -                               | 118<br>426.8                 | -                        | -<br>-         | <br>990.4         | 718                 |             |
| X122                          | 3"                  | 229               | 4/27/2005 20:37                                       | 230.2                   | -           | ••                              | 924                          | -                        | -              |                   |                     |             |
| X123                          | Surface<br>3"<br>6" | 220<br>221<br>222 | 4/27/2005 19:55<br>4/27/2005 19:57<br>4/27/2005 20:00 | 238.2<br>556<br>328     | -           | = :                             | 1009.6<br>2428.8<br>930.4    | 312.2                    | -              | 493.6<br>1040<br> |                     | - 1         |
| X124                          | Surface<br>3"<br>6" | 217<br>218<br>219 | 4/27/2005 19:02<br>4/27/2005 19:04<br>4/27/2005 19:05 | 736.8<br>1100<br>2360   | <br>        | <br>                            | 6918.4<br>9747.2<br>14899.2  | 499.6<br>700.4           | -<br>          | <br>              | <br>-<br>-          | <br><br>    |
| X125                          | Surface<br>3"       | 215<br>216        | 4/27/2005 18:41<br>4/27/2005 18:43                    | 130.4<br>131.1          | -           | -                               | 2089.6<br>1760               | -                        |                | <br>              | - ·                 | - 4 X       |
| X126                          | Surface<br>3"       | 238<br>239        | 4/28/2005 10:08<br>4/28/2005 10:11                    | 42.4<br>38.4<br>ppm     | 21.6<br>ppm | <br>ppm                         | 414<br>482.8<br>ppm          | <br>ppm                  | <br><br>ppm    | 302,4<br><br>ppm  | <br><br>ppm         | <br><br>ppm |

Eagle Zinc Company ILD 980606941 TABLE 8 XRF Sample Summary (Sediment)

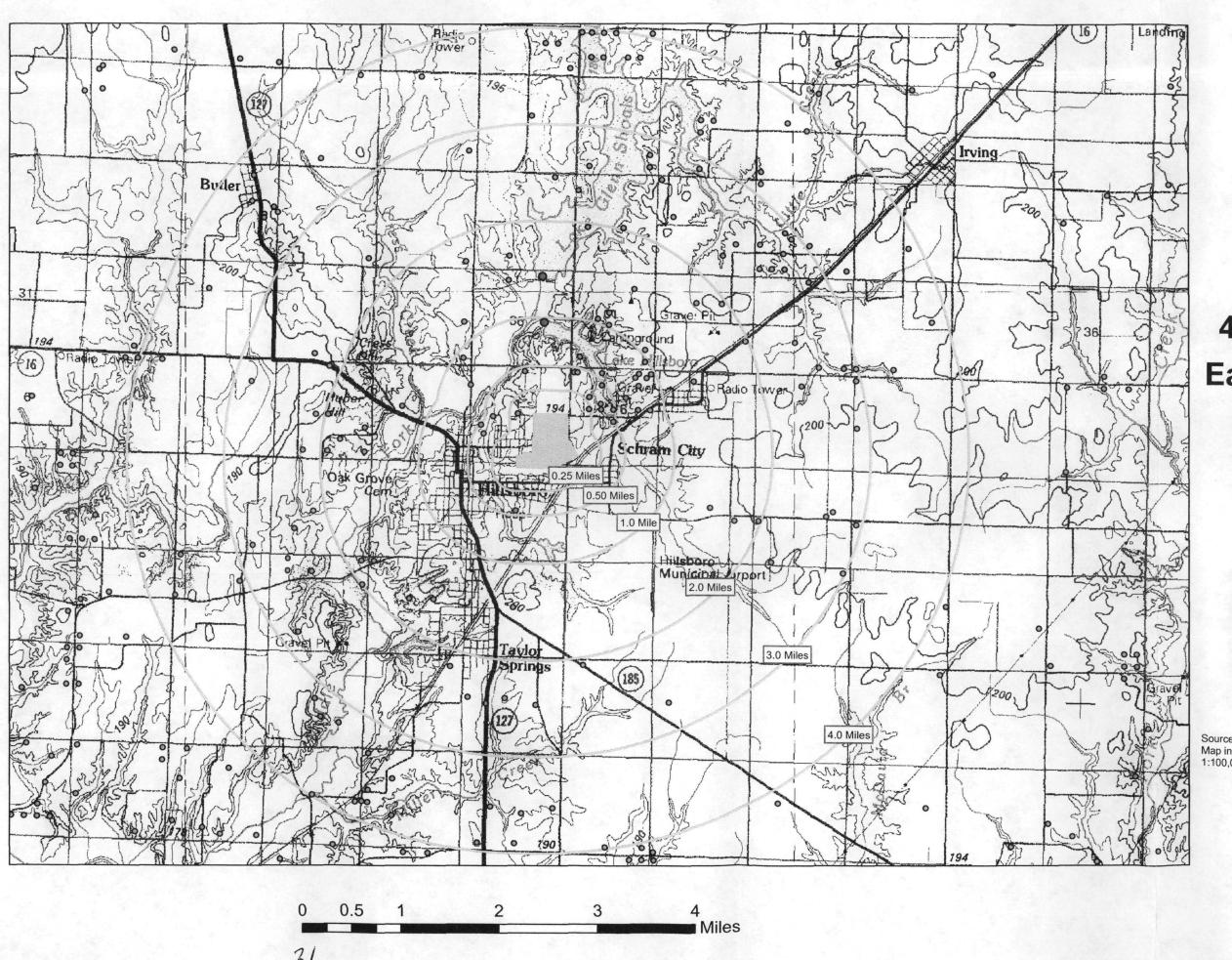
| Sample No. | Depth        | XRF No. | Date/Time       | Pb    | As           | Hg       | Zn      | Cu       | Ni           | Mn     | Cr       | Ва    |
|------------|--------------|---------|-----------------|-------|--------------|----------|---------|----------|--------------|--------|----------|-------|
| X201       | Surface      | 204     | 4/27/2005 16:37 | - 1   |              | -        | 356.2   | 88.9     |              |        | -        |       |
|            | 6"           | 205     | 4/27/2005 16:39 | -     | -            | -        | 239.6   | -        | -            | -      |          | -     |
| X202       | Surface      | 171     | 4/27/2005 9:43  | 421.2 |              |          | 33894.4 |          | -            |        |          |       |
|            | 3"           | 172     | 4/27/2005 9:44  | 397.8 |              |          | 28492.8 | 522.8    |              | -      | -        | -     |
|            | 6"           | 173     | 4/27/2005 9:46  | 292.8 | -            | -        | 16294.4 | -        | 1109.6       | - 1    | -        | -     |
| X203/X204  | 0 to 1/2"    | 163     | 4/26/2005 19:43 | 166.1 | <u>-</u>     | 4        | 17996.8 | 289.4    |              | 470    | - 1      |       |
| X205       | 0 to 1/2"    | 160     | 4/26/2005 18:58 | 491.6 | -            | <u> </u> | 9939.2  |          |              | 1200   | <u>-</u> |       |
| X206       | Surface      | 147     | 4/26/2005 17:40 | 71.2  | - ·          |          | 5699.2  |          |              | 550.4  |          |       |
|            | 3"           | 148     | 4/26/2005 17:50 | 123.2 |              |          | 9728    |          | -            |        |          |       |
|            | 6"           | 149     | 4/26/2005 17:51 | 112.2 | -            |          | 9689.6  |          |              |        |          |       |
|            | 12"          | 150     | 4/26/2005 17:54 | 90.1  | -            | -        | 9824    |          | -            | -      |          |       |
| X207       | Surface      | 142     | 4/26/2005 15:49 | 131.6 | 2            |          | 7795.2  | -        |              | -      |          |       |
|            | 3"           | 143     | 4/26/2005 15:51 | 140.2 |              |          | 6726.4  | 217.6    |              |        |          |       |
|            | 6"           | 144     | 4/26/2005 15:52 | 138.7 | -            |          | 6128    | -        | -            | -      |          | -     |
| X208       | Surface      | 134     | 4/26/2005 15:12 | 101   |              | 1        | 2160    | -        | no sustant A | ÷      | -        |       |
|            | 3"           | 135     | 4/26/2005 15:14 | 70.6  |              | -        | 1659.2  | -        |              | 2859.2 |          |       |
|            | 6"           | 136     | 4/26/2005 15:15 | 62.4  | -            | -        | 2179.2  | -        | -            | 774    | -        | -     |
| X209       | Surface      | 128     | 4/26/2005 14:24 | 80.5  | <del>-</del> |          | 3849.6  | <u>-</u> | 1100         | 4      | -        |       |
|            | 3"           | 129     | 4/26/2005 14:26 | 97.3  |              |          | 4339.2  |          | 251.2        |        |          |       |
|            | 6"           | 130     | 4/26/2005 14:29 | 61.2  | -            | -        | 1840    |          | 289.4        |        |          |       |
| X210       | Surface      | 108     | 4/26/2005 11:33 | 88.9  |              |          | 5187.2  | -        | 192.6        |        |          |       |
|            | Surface (Am) | 109     | 4/26/2005 11:35 | -     | -            |          |         | -        |              | -      |          | 192.4 |
|            | 3" (Am)      | 110     | 4/26/2005 11:37 | -     | -            |          |         |          |              |        |          | 202.1 |
|            | 3"           | 111     | 4/26/2005 11:38 | 96.3  |              |          | 5987.2  |          |              |        |          |       |
|            | 6"           | 112     | 4/26/2005 11:40 | 102.3 | -            |          | 4057.6  | 161.1    | 203.9        |        |          |       |
|            | 6" (Am)      | 113     | 4/26/2005 11:41 | -     | 7 /          |          | -       |          |              |        |          | 293.8 |
|            | 12" (Am)     | 114     | 4/26/2005 11:42 | -     | -            |          |         |          |              |        |          |       |
|            | 12"          | 115     | 4/26/2005 11:45 | 35.8  |              |          | 1389.6  |          |              |        | -        |       |
|            |              |         |                 | ppm   | ppm          | ppm      | ppm     | ppm      | ppm          | ppm    | ppm      | ppm   |

Eagle Zinc Company TABLE 9 ILD 980606941 XRF Sample Summary (Waste Piles) XRF No. Sample No. Depth Date/Time Pb As Hg Zn Cu Ni Mn Cr Ba X301 0 to 2" 84 4/25/2005 16:29 1739.2 84377.6 1349.6 918.4 1969.6 1200 -----0 to 2" 4/25/2005 16:43 14694.4 X302 85 -------930611.2 4387.2 -------X303 0 to 2" 87 4/25/2005 17:02 5308.8 155955.2 7737.6 0 to 2" 88 4/25/2005 17:20 43392 X304 42880 5440 19097.6 -----------X305 0 to 2" 89 4/25/2005 17:36 7494.4 --59955.2 2489.6 ------X306 0 to 1/2" 90 4/25/2005 18:24 9388.8 143.5 91750.4 3459.2 0 to 1/2" X307 94 4/25/2005 18:58 6067.2 617.2 226918.4 5987.2 --------4" 95 4/25/2005 18:59 10297.6 894.4 401817.6 8275.2 --X308 0 to 1/2" 96 4/25/2005 19:18 27289.6 529.63802 80281.6 32384 --. ------104 X309 0 to 1/2" 4/26/2005 9:16 10496 553779.2 41292.8 6377.6 ------X311 0 to 1/2" 105 4/26/2005 9:35 19392 196.755596 55961.6 33587.2 12 X310/312 0 to 1/2" 106 4/26/2005 9:56 13798.4 853606.4 43596.8 27596.8 5068.8 -------X313 0 to 1/2" 107 4/26/2005 10:37 24588.8 841318.4 18188.8 ---------ppm ppm ppm ppm ppm ppm ppm ppm ppm

### APPENDIX A

SITE 4-MILE RADIUS MAP

EAGLE ZINC COMPANY



# 4-Mile Radius Map Eagle Zinc Company

## Legend

- Surface Water Intake
- Private Well
- Site Location

Source: United States Geological Survey Topographical Map in Digital Raster Graphic Format, 1:100,000 Scale Quadrangle, Index # f39089a1



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# APPENDIX B

# 15 - MILE SURFACE WATER MAP

EAGLE ZINC COMPANY

# 15-Mile Surface Water Pathway Map **Eagle Zinc Company**

0.5

# Legend Surface Water Intake Surface Water Pathway Site Location





# APPENDIX C

# TARGET COMPOUND LIST AND DATA QUALIFIERS

EAGLE ZINC COMPANY

# TARGET COMPOUND LIST

### **Volatile Target Compounds**

| Chloromethane              | 1,2-Dichloropropane       |
|----------------------------|---------------------------|
| Bromomethane               | cis-1,3-Dichloropropene   |
| Vinyl Chlorde              | Trichloroethene           |
| Chloroethane               | Dibromochloromethane      |
| Methylene Chloride         | 1,1,2-Trichloroethane     |
| Acetone                    | Benzene                   |
| Carbon Disulfide           | trans-1,3-Dichloropropene |
| 1,1-Dichloroethene         | Bromoform                 |
| 1,1-Dichloroethane         | 4-Methyl-2-pentanone      |
| 1,2-Dichloroehtene (total) | 2-Hexanone                |
| Chloroform                 | Tetrachloroethene         |
| 1,2-Dichloroethane         | 1,1,2,2-Tetrachloroethane |
| 2-Butanone                 | Toluene                   |
| 1,1,1-Trichloroethane      | Chlorobenzene             |
| Carbon Tetrachloride       | Ethylbenzene              |
| Vinyl Acetate              | Styrene                   |
| Bromodichloromethane       | Xylenes (total)           |
|                            |                           |

### **Base/Neutral Target Compounds**

| Hexachloroethane              | 2,4-Dinitrotoluene        |  |
|-------------------------------|---------------------------|--|
| bis(2-Chloroethyl) Ether      | Diethylphthalate          |  |
| Benzyl Alcohol                | N-Nitrosodiphenylamine    |  |
| bis (2-Chloroisopropyl) Ether | Hexachlorobenzene         |  |
| N-Nitroso-Di-n-Propylamine    | Phenanthrene              |  |
| Nitrobenzene                  | 4-Bromophenyl-phenylether |  |
| Hexachlorobutadiene           | Anthracene                |  |

|                            | Dire But debthelete        |
|----------------------------|----------------------------|
| 2-Methylnaphthalene        | Di-n-Butylphthalate        |
| 1,2,4-Trichlorobenzene     | Fluoranthene               |
| Isophorone                 | Pyrene                     |
| Naphthalene                | Butylbenzylphthalate       |
| 4-Chloroaniline            | bis(2-Ethylhexyl)Phthalate |
| bis(2-chloroethoxy)Methane | Chrysene                   |
| Hexachlorocyclopentadiene  | Benzo(a)Anthracene         |
| 2-Chloronaphthalene        | 3-3'-Dichlorobenzidene     |
| 2-Nitroaniline             | Di-n-Octyl Phthalate       |
| Acenaphthylene             | Benzo(b)Fluoranthene       |
| 3-Nitroaniline             | Benzo(k)Fluoranthene       |
| Acenaphthene               | Benzo(a)Pyrene             |
| Dibenzofuran               | Ideno(1,2,3-cd)Pyrene      |
| Dimethyl Phthalate         | Dibenz(a,h)Anthracene      |
| 2,6-Dinitrotoluene         | Benzo(g,h,i)Perylene       |
| Fluorene                   | 1,2-Dichlorobenzene        |
| 4-Nitroaniline             | 1,3-Dichlorobenzene        |
| 4-Chlorophenyl-phenylether | 1,4-Dichlorobenzene        |

### Acid Target Compounds

| Benzoic Acid       | 2,4,6-Trichlorophenol      |  |
|--------------------|----------------------------|--|
| Phenol             | 2,4,5-Trichlorophenol      |  |
| 2-Chlorophenol     | 4-Chloro-3-methylphenol    |  |
| 2-Nitrophenol      | 2,4-Dinitrophenol          |  |
| 2-Methylphenol     | 2-Methyl-4,6-dinitrophenol |  |
| 2,4-Dimethylphenol | Pentachlorophenol          |  |
| 4-Methylphenol     | 4-Nitrophenol              |  |
| 2,4-Dichlorophenol |                            |  |

# Pesticide/PCB Target Compounds

| alpha-BHC           | Endrin Ketone      |
|---------------------|--------------------|
| beta-BHC            | Endosulfan Sulfate |
| delta-BHC           | Methoxychlor       |
| gamma-BHC (Lindane) | alpha-Chlordane    |
| Heptachlor          | gamma-Chiordane    |
| Aldrin              | Toxaphene          |
| Heptachlor epoxide  | Aroclor-1016       |
| Endosulfan l        | Aroclor-1221       |
| 4,4'-DDE            | Aroclor-1232       |
| Dieldrin            | Aroclor-1242       |
| Endrin              | Aroclor-1248       |
| 4,4'-DDD            | Aroclor-1254       |
| Endosulfan II       | Aroclor-1260       |
| 4,4'-DDT            |                    |

### Inorganic Target Compounds

| Aluminum  | Manganese |
|-----------|-----------|
| Antimony  | Mercury   |
| Arsenic   | Nickel    |
| Barium    | Potassium |
| Beryllium | Selenium  |
| Cadmium   | Silver    |
| Calcium   | Sodium    |
| Chromium  | Thallium  |
| Cobolt    | Vanadium  |
| Copper    | Zinc      |
| Iron      | Cyanide   |
| Lead      | Sulfide   |
| Magnesium |           |

# **DATA QUALIFIERS**

| QUALIFIER | DEFINITION ORGANICS  | DEFINITION INORGANICS   |
|-----------|--|---|
| U         | Compound was tested for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For soil samples subjected to GPC clean-up procedures, the CRQL is also multiplied by two, to account for the fact that only half of the extract is recovered.  | Analyte was analyzed for but not detected.  |
| J         | Estimated value. Used when estimating a concentration for tentatively identified compounds (TICS) where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria and the result is less than the sample quantitation limit but greater than zero. Used in data validation when the quality control data indicate that a value may not be accurate.  | Estimated value. Used in data validation when the quality control data indicate that a value may not be accurate. |
| С         | This flag applies to pesticide results where the identification is confirmed by GC/MS.   | Method qualifier indicates analysis by the Manual Spectrophotometric method.                                      |
| В         | Analyte was found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.   | The reported value is less than the CRDL but greater than the instrument detection limit (IDL).                   |
| D         | Identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is reanalyzed at a higher dilution factor as in the "E" flag, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values are flagged with the "D" flag.   | Not used.   |
| E         | Identifies compounds whose concentrations exceed the calibration range for that specific analysis. All extracts containing compounds exceeding the calibration range must be diluted and analyzed again. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses must be reported on separate Forms I. The Form I for the diluted sample must have the "DL" suffix appended to the sample number. | The reported value is estimated because of the presence of interference.  |
| A         | This flag indicates that a TIC is a suspected aldol concentration product formed by the reaction of the solvents used to process the sample in the laboratory.   | Method qualifier indicates analysis<br>by Flame Atomic Absorption (AA).   |
| М         | Not used.  | Duplicate injection (a QC parameter not met).   |



| N  | Not used   | Spiked sample (a QC parameter not met).   |
|----|--|---|
| S  | Not used.  | The reported value was determined by the Method of Standard Additions (MSA).  |
| W  | Not used.  | Post digestion spike for Furnace AA analysis (a QC parameter) is out of control limits of 85% to 115% recovery, while sample absorbance is less than 50% of spike absorbance. |
| •  | Not used.  | Duplicate analysis (a QC parameter not within control limits).  |
| •  | Not used.  | Correlation coefficient for MSA (a QC parameter) is less than 0.995.  |
| P  | Not used.  | Method qualifier indicates analysis<br>by ICP (Inductively Coupled<br>Plasma) Spectroscopy.   |
| CV | Not used.  | Method qualifier indicates analysis by Cold Vapor AA.   |
| AV | Not used.  | Method qualifier indicates analysis by Automated Cold Vapor AA.   |
| AS | Not used.  | Method qualifier indicates analysis by Semi-Automated Cold Spectrophotometry.   |
| Т  | Not used   | Method qualifier indicates Titrimetric analysis.  |
| NR | The analyte was not required to be analyzed.   | The analyte was not required to be analyzed.  |
| R  | Rejected data. The QC parameters indicate that the data is not usable for any purpose. | Rejected data. The QC parameters indicate that the data is not usable for any purpose.  |

### APPENDIX D

# IEPA SITE PHOTOGRAPHS

EAGLE ZINC COMPANY



Miles

41

Photo Location Map Eagle Zinc Company

### Legend

- o Soil
- O Sediment
- Waste

Site Boundary



Source: Illinois Department of Natural Resources Geospatial Data Clearinghouse: Digital Orthographic Quadrangles, 1999, accessed 2005

SITE ILD#: 980606941 DATE: 4/25/05 COUNTY: Montgomery

TIME: 15:20 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper COMMENTS: Picture taken toward: South. Photo Number 1. Sample X301 was collected at the southeast area of



DATE: 4/25/05

the site from a

black cinder pile.

TIME: 15:20

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward: East.

Photo Number 2.

Sample X301. The sample consisted

of a fine black

material collected

at a depth of 0 to



DATE: 4/25/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 15:40 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
North.

Photo Number 3.

Sample X302 was collected at the south area of the site from fine

EAGLE ZINC CO
DATE = 25 05
TIME 1540
SMPLE X302

DATE: 4/25/05

black cinders.

TIME: 15:40

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:

East.

Photo Number 4.

Sample X302. The

area contains

little vegetation.

Collected at a

depth of 0 to 2



DATE: 4/25/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 16:00 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
West.

Photo Number 5.

Sample X303 was

collected at the

southwest area of

the site from a

slag material.



DATE: 4/25/05

TIME: 16:00

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
South.

Photo Number 6.

Sample X303. The

sample consisted

of a fine brownish

gray material col-

lected at a depth

0 to 2 inches.



DATE: 4/25/05 SITE ILD#: 980606941 COUNTY: Montgomery
TIME: 16:10 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
East.

Photo Number 7.

Sample X304 was

collected at the

southwest area of

the site from a

slag pile.

DATE: 4/25/05

TIME: 16:10

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
West.

Photo Number 8.

Sample X304. The

sample consisted

of an orange brown

slag collected at

a depth of 0 to 2





DATE: 4/25/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 16:30 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
West.

Photo Number 9.

Sample X305 was

collected at the

southwest area of

the site from a

slag pile.



DATE: 4/25/05

TIME: 16:30

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
South.

Photo Number 10.

Sample X305. The

sample consisted

of a fine black-

brown slag collect-

ed at a depth of

0 to 2 inches.



DATE: 4/25/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 17:20 | SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
South.

Photo Number 11.

Sample X306 was

collected at the

southwest area of

the site from a

slag & cinder pile.

DATE: 4/25/05

TIME: 17:20

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
West

Photo Number 12.

Sample X306. The

sample consisted

of a gray material

collected at a

depth of 0 to 1/2





DATE: 4/25/05 | SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 17:40 | SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
East.

Photo Number 13.

Sample X307 was

collected at the

west central area

of the site from a

cinder/brick pile.



DATE: 4/25/05

TIME: 17:40

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
South.

Photo Number 14.

Sample X307. The

sample consisted

of a fine brown/

gray material col-

lected at a depth

0 to ½ inches.



DATE: 4/25/05 | SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 18:15 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward: east.

Photo Number 15.

Sample X308 was

collected at the

central area of

the site from a

slag pile.



DATE: 4/25/05

TIME: 18:15

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
West.

Photo Number 16.

Sample X308. The

sample consisted

of light gray slag

fines collected at

a depth of 0 to

½ inches.



DATE: 4/26/05

SITE ILD#: 980606941

COUNTY: Montgomery

TIME: 8:10

SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:

East.

Photo Number 17.

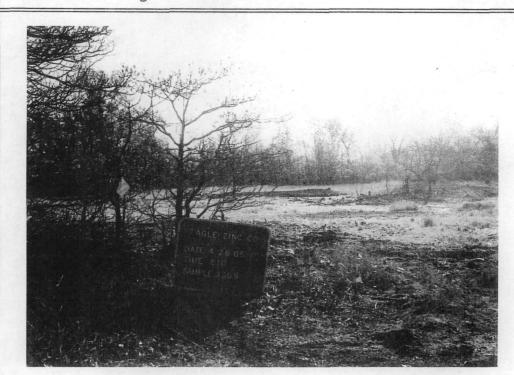
Sample X309 was

collected at the

northwest area of

the site from a

slag pile.



DATE: 4/26/05

TIME: 8:10

PHOTOGRAPH TAKEN

BY: R. CASPER

COMMENTS: Picture taken toward: North.

Photo Number 18.

Sample X309. The

sample consisted

of a fine medium

gray material with

metal shavings,

depth 0 to ½ inches



TIME: 8:30 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
West.

Photo Number 19.

Sample X311 was

collected at the

west area of the

site. Houses lie

across the street.

DATE: 4/26/05

TIME: 8:30

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward: East.

Photo Number 20.

Sample X311. The

sample consisted

of a medium gray

slag fines, from a

depth of 0 to 1/2





DATE: 4/26/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 8:45 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
West.

Photo Number 21.

duplicate samples

X310/X312 collected

at the northwest

area of the site.



DATE: 4/26/05

TIME: 8:45

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward: East.

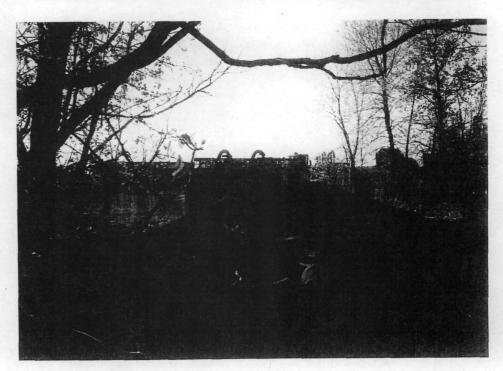
Photo Number 22.

Samples X310/X312.

Sample consisted

of a fine medium

gray slag material.



DATE: 4/26/05 SITE ILD#: 980606941 COUNTY: Montgomery TIME: 9:30 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward: South.

Photo Number 23.



DATE: 4/26/05

TIME: 9:30

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward: North.

Photo Number 24.

Sample X313. The

sample consisted

of a fine light

gray material with

white fragments.

Depth 0 to ½ inches



DATE: 4/26/05 | SITE ILD#: 980606941 | COUNTY: Montgomery

TIME: 10:30 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
East.

Photo Number 25.

Sample X210 was

collected from a

brownish-gray silty

clay sediment at a

depth of 3" to 5"

DATE: 4/26/05

TIME: 10:30

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
North.

Photo Number 26.

Sample X210 was

consisted near the

point where drain-

age from the site

enters Lake

Hillsboro.





DATE: 4/26/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 12:50 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
West.

Photo Number 27.

Residential sample

X113 was collected

northwest of the

site from black

cinders and soil.



DATE: 4/26/05

TIME: 12:50

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward: East.

Photo Number 28.

Sample X113. The

sample was

collected at a

depth of 1 to 3



DATE: 4/26/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 13:40 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
South.

Photo Number 29.

Sample X209 was

collected south of

Smith road, in the

offsite drainage

pathway.

DATE: 4/26/05

TIME: 13:40

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
North.

Photo Number 30.

Sample X209. The

sample consisted

of a brown sandy

clay with some

silt and organic

material.





DATE: 4/26/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 14:30 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
South.

Photo Number 31.

Sample X208 was

collected in the

offsite drainage

pathway south of

Smith Road.



DATE: 4/26/05

TIME: 14:30

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
North.

Photo Number 32.

Sample X208. The

sample consisted

of a brown silt.

Collected at a

depth of 0 to 2



DATE: 4/26/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 15:00 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
West.

Photo Number 33.

Sample X207 was

collected from the

drainage pathway

southeast of the

site.

DATE: 4/26/05

TIME: 15:00

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
South.

Photo Number 34.

Sample X207. The

sample consisted

of a brown silt

with a little sand

and clay.





DATE: 4/26/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 17:00 | SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
South.

Photo Number 35.

Sample X206 was

collected offsite

east of Industrial

Park Road.

DATE: 4/26/05

TIME: 17:00

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
East.

Photo Number 36.

Sample X206. The

sample consisted

of a brown silty

clay, collected at

a depth of 3 to 5





DATE: 4/26/05 SITE ILD#: 980606941 COUNTY: Montgomery
TIME: 17:40 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
South.

Photo Number 37.

Sample X205 was

collected onsite

approximately 75

feet west of Indus-

trial Park Road.



DATE: 4/26/05

TIME: 17:40

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
East.

Photo Number 38.

Sample X205. The

sample consisted

of a brown silty

clay collected

from 0 to ½ inches.



DATE: 4/26/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 18:40 | SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
West.

Photo Number 39.

Duplicate samples

X203/X204 collected

onsite west of

Industrial Park

Road.

DATE: 4/27/05

TIME: 18:40

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:

East.

Photo Number 40.

Samples X203/X204.

The samples

consisted of a

brown silty clay.

Collected 0 to 2

inches deep.





DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 8:50 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward: East.

Photo Number 41.

Sample X202 was

collected in the

onsite drainage

pathway.

DATE: 4/27/05

TIME: 8:50

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
West.

Photo Number 42.

Sample X202. The

sample consisted

of a gray silty

clay collected at

a depth of 0 to 2





DATE: 4/27/05 | SITE ILD#: 980606941 | COUNTY: Montgomery

TIME: 9:30 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
South.

Photo Number 43.

Sample X111 was

collected from a

residential yard

west of the site.



DATE: 4/27/05

TIME: 9:30

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:

East

Photo Number 44.

Sample X111. The

sample consisted

of a black silty

loam collected at

a depth of 0 to 1

inch.



DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 9:50 | SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
South.

Photo Number 45.

Sample X112 was

collected from a

residential area

west of the site.

DATE: 4/27/05

TIME: 9:50

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward: East.

Photo Number 46.

Sample X112. The

sample consisted

of reddish-brown

cinders and slag,

collected from a

depth of 0 to 2".





DATE: 4/27/05

SITE ILD#: 980606941

COUNTY: Montgomery

TIME: 10:10

SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward: East.

Photo Number 47.

Sample X110 was

collected from a

residential area

west of the site.

DATE: 4/27/05

TIME: 10:10

PHOTOGRAPH TAKEN

BY: R. CASPER

COMMENTS: Picture taken toward: West.

Photo Number 48.

Sample X110. The

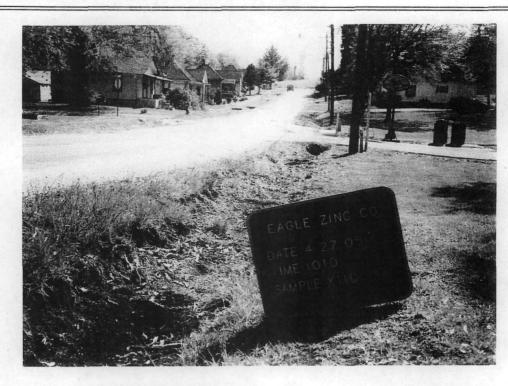
sample consisted

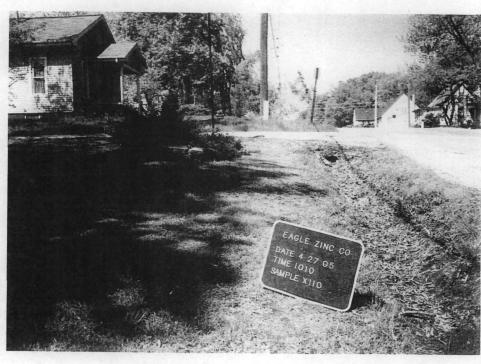
of gravel, black

fill material,

cinders and metal

pieces.





DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery
TIME: 10:50 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN
BY: R. Casper

COMMENTS: Picture taken toward: East.

Photo Number 49.

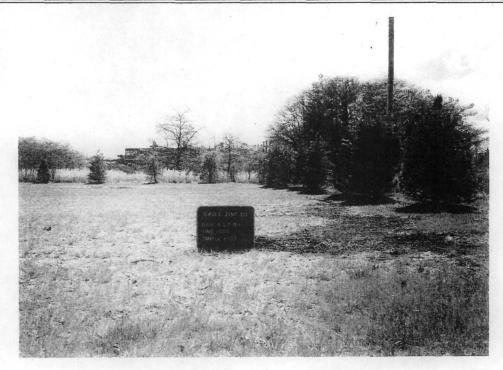
Sample X107 was

collected from a

field west of the

site near a

residential area.



DATE: 4/27/05

TIME: 10:50

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
North.

Photo Number 50.

Sample X107. The

sample consisted

of a slag material

over clay, collect-

ed at depth of

0 to 1 inch.



DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 11:40 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
South.

Photo Number 51.

Sample X104 was

collected from a

residential yard

northwest of the

site.

DATE: 4/27/05

TIME: 11:40

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
North.

Photo Number 52.

Sample X104. The

sample consisted

of a brown-black

clay, collected at

a depth of 0 to 1

inch.





DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 12:00 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
North.

Photo Number 53.

Sample X106 was

collected from a

public housing

project northwest

of the site.



DATE: 4/27/05

TIME: 12:00

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
East.

Photo Number 54.

Sample X106. The

sample consisted

of a brown-black

clay loam collected

at a depth of 0

to 2 inches.



DATE: 4/27/05 | SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 12:30 | SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:

East.

Photo Number 55.

Sample X108 was

collected from a

residential yard

west of the site.

DATE: 4/27/05

TIME: 12:30

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
North.

Photo Number 56.

Sample X108. The

sample consisted

of a light brown

clay loam collected

at a depth of 0





DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery
TIME: 12:50 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
West.

Photo Number 57.

Sample X114 was

collected from a

residential yard

northwest of the

site.

DATE: 4/27/05

TIME: 12:50

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward: East.

Photo Number 58.

Sample X114. The

sample consisted

of a light brown

clay loam collected

a depth of 0 to 3







DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 14:10 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
North.

Photo Number 59.

Samples X115/X105

collected from an

athletic field

complex north of

site.

DATE: 4/27/05

TIME: 14:10

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
East.

Photo Number 60.

Samples X115/X105.

Duplicate samples

consisting of

cinders, slag

material and black

fines.





DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 14:50 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:

East.

Photo Number 61.

Sample X116 was

collected from a

residential yard

northeast of the

site.



DATE:

TIME:

PHOTOGRAPH TAKEN

COMMENTS: Picture taken toward:

Photo Number

PHOTO NOT TAKEN

DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery
TIME: 15:20 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward: East.

Photo Number 62.

Sample X201 was

collected from

lake Hillsboro at

a residence located

northeast of site.



DATE: 4/27/05

TIME: 15:20

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
South.

Photo Number 63.

Sample X201. The

sample consisted

of a brownish gray

silty clay collect-

ed at a depth of

2 to 4 inches.



DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 15:50 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:

East.

Photo Number 64.

Sample X118 was

collected from a

residential yard

northeast of the

site.

DATE: 4/27/05

TIME: 15:50

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
West.

Photo Number 65.

Sample X118. The

sample consisted

of a dark brown

silty loam collect-

ed at a depth of

1 to 3 inches.





DATE: 4/27/05 | SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 17:20 | SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
North.

Photo Number 66.

Sample X109 was

collected from a

residential yard

east of the site.



TIME: 17:20

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
East.

Photo Number 67.

Sample X109. The

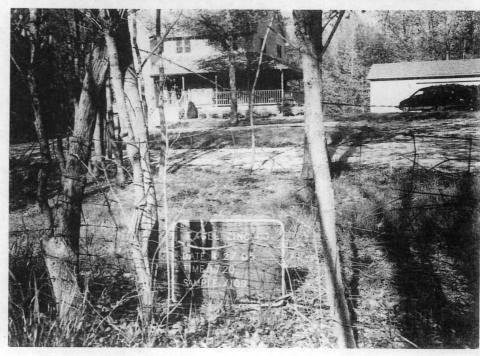
sample consisted

of a brown silty

clay collected at

a depth of 0 to 2





DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 17:40 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
North.

Photo Number 68.

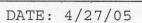
Sample X125 was

collected from a

residential yard

southeast of the

site.



TIME: 17:40

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
South.

Photo Number 69.

Sample X125. The

sample consisted

of a black loam

with gravel

collected at depth

of 0 to 3 inches.





DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 18:00 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
North.

Photo Number 70.

Sample X124 was

collected from a

residential yard

southeast of the

site.

DATE: 4/27/05

TIME: 18:00

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:

East.

Photo Number 71.

Sample X124. The

sample consisted

of a fine black

slag material.

Collected at depth

of 3 to 6 inches.





DATE: 4/27/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 18:50 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
South.

Photo Number 72.

Sample X123 was collected from a residential yard southeast of the

DATE: 4/27/05

TIME: 18:50

site.

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
East.

Photo Number 73.

Sample X123. The

sample consisted

of a black silty

loam with cinders

collected at depth

of 0 to 3 inch.





DATE: 4/27/05

SITE ILD#: 980606941

COUNTY: Montgomery

TIME: 19:20

SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
South.

Photo Number 74.

Sample X122 was

collected from a

residential yard

east of the site.



DATE: 4/27/05

TIME: 19:20

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward: East.

Photo Number 75.

Sample X122. The

sample consisted

of a brown silty

loam collected at

a depth of 2 to 3



DATE: 4/28/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 8:40 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:

East.

Photo Number 76.

Samples X120/X121

were collected from

a residential yard

east of the site.



DATE: 4/28/05

TIME: 8:40

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
North.

Photo Number 77.

Duplicate samples

X120/X121 consisted

of a light brown

silty clay collect-

ed at a depth of

0 to 1 inch.



DATE: 4/28/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 9:00 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:

East.

Photo Number 78.

Sample X126 was

collected from a

residential yard

southeast of the

site.



DATE: 4/28/05

TIME: 9:00

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
North.

Photo Number 79.

Sample X126. The

sample consisted

of a black silty

loam collected at

a depth of 0 to 2



DATE: 4/28/05 SITE ILD#: 980606941 COUNTY: Montgomery

TIME: 9:40 SITE NAME: Eagle Zinc Co.

PHOTOGRAPH TAKEN BY: R. Casper

COMMENTS: Picture taken toward:
South.

Photo Number 80.

Sample X119 was

collected from a

facility located

southeast of the

site.



DATE: 4/28/05

TIME: 9:40

PHOTOGRAPH TAKEN BY: R. CASPER

COMMENTS: Picture taken toward:
East.

Photo Number 81.

Sample X119. The

sample consisted

of a black silty

loam collected at

a depth of 0 to 2

